



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/966,985	11/10/1997	JEFFREY JACOBSEN	KPN96-03A8	6374

7590 01/16/2002

THOMAS O HOOVER
HAMILTON SMITH BROOK AND REYNOLDS
TWO MILITIA DRIVE
LEXINGTON, MA 02173

EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
----------	--------------

2673

DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

N.M.

Office Action Summary

Application No.

08/966,985

Applicant(s)

JACOBSEN ET AL.

Examiner

Jeff Piziali

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 1997 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 13, 2001 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 6, 12 and 28-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claims 1, 6 and 12 recite the limitation of an LCD having an active area of less than 10mm². However, the pending specification discloses an active area of less than 160mm² (see Page 5, Lines 28-30).

Claims 28, 31 and 34 recite the limitation of pixel electrodes with a width of less than about 10 microns. However, the pending specification discloses a pixel electrode width up to and including 10 microns (see Page 15, Lines 17-24).

Claims 29, 32 and 35 recite the limitation of a pixel electrode array having an active area of less than 5mm^2 . However, the pending specification discloses a pixel electrode array having an active area of less than 160mm^2 (see Page 5, Lines 28-30).

Claims 30, 33 and 36 recite the limitation of pixel electrodes with a width of less than about 8 microns. However, the pending specification discloses a pixel electrode width of 8-10 microns (see Page 15, Lines 17-24).

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-27 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-27 of copending Application No. 08/741,671. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

6. Claims 1-27 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-25 of copending Application No. 08/766,607. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

7. Claims 1-27 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-40 of copending Application No. 08/810,646. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

8. Claims 1-27 are provisionally rejected under the judicially created doctrine of double patenting over claims 1-5 and 7-19 of copending Application No. 08/853,630. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: a portable communications device having a reflective display comprising a device housing having a wireless receiver; an active matrix liquid crystal display having an array of at least 75,000 pixel electrodes and an active area of less than 160 mm²; a lens that magnifies an image on the display; a light emitting diode light source optically coupled to the display; a display control circuit in the housing and that is connected to the wireless receiver, the matrix display and the light source such that image data that is received by the receiver is input to the display control circuit which generates the display signal; and an optical coupler that

Art Unit: 2673

couples light from the light source onto the matrix display and the reflected light through the lens.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 5,815,126) in view of Crossland et al. (GB 2,149,553).

Regarding claim 1, Fan et al. discloses a portable communications device having a reflective display comprising a device housing [1] (see Figure 3; Column 5, Lines 60-66) having a wireless receiver [720] (see Figure 31A; Column 16, Lines 25-35); an active matrix liquid crystal display having an array of at least 75,000 pixel electrodes (see Column 3, Lines 31-37) and an active area of roughly 160 mm² (see Column 9, Lines 27-28); a lens [1907] that focuses an image on the display for viewing by a user (see Figure 52A; Column 23, Lines 7-11); a light emitting diode light source optically coupled to the display (see Column 2, Lines 56-60); a display control circuit [210] positioned in the housing and connected to the wireless receiver (see

Art Unit: 2673

Figure 2; Column 7, Lines 37-43), the matrix display, and the light source such that image data that is received by the receiver is input to the display control circuit, which generates a display signal to drive the electrodes (see Figure 2; Column 7, Lines 30-58); and an optical coupler that couples light from the light source onto the matrix display and the reflected light through the lens (see Figure 52B; Column 23, Lines 12-20). Fan et al. does not disclose expressly an active area of less than 160 mm^2 .

However, Crossland et al. discloses a liquid crystal display with an active area of less than 160 mm^2 (see Page 1, Lines 88-90). Fan et al. and Crossland et al. are analogous art because they are from the field of portable communications devices. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Crossland's liquid crystal display dimensions with Fan's communication device to provide a lighter, more comfortable and more streamlined display.

Regarding claim 2, Fan et al. discloses the pixel electrodes are reflective pixel electrodes (see Column 2, Lines 56-60) and further comprising a transistor circuit formed with single crystal silicon associated with each pixel electrode (see Column 1, Lines 45-58).

Regarding claim 3, Fan et al. discloses a color sequential display circuit coupled to the matrix display and the control circuit (see Figure 4; Column 8, Lines 49-54).

Regarding claim 4, Fan et al. discloses a switching circuit connected to a counterelectrode panel of the matrix display for switching the applied voltage to the counterelectrode panel (see Figure 4; Column 8, Lines 49-54).

11. Claims 5 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 5,815,126) in view of Crossland et al. (GB 2,149,553) as applied to claims 3 and 2 above, and further in view of Zavracky et al. (US 5,673,059).

Regarding claim 5, Fan et al. does not disclose expressly the optical coupler includes a dichroic prism interposed between the lens and the matrix display. However, Zavracky et al. discloses a dichroic prism interposed between a lens and a matrix display (see Column 1, Line 50 - Column 2, Line 6). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's color sequential prism system with Fan's display to provide a color display with reduced visible flicker.

Regarding claim 25, Fan et al. does not disclose expressly the light source is three light emitting diodes of three distinct colors. However, Zavracky et al. discloses a light source that is three light emitting diodes of three distinct colors (see claims 28 and 29). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's three light emitting diodes of three distinct colors system with Fan's display to provide a color display with reduced visible flicker.

Regarding claim 26, Fan et al. does not disclose expressly at least one dichroic mirror for directing the light from one light emitting diode and allowing light from another light emitting diode to pass through. However, Zavracky et al. discloses at least one dichroic mirror [210] for directing the light from one light emitting diode and allowing light from another light emitting diode to pass through (see Figure 4; Column 9, Lines 45-58). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's dichroic mirror with Fan's display to provide a color display with reduced visible flicker.

Regarding claim 27, Fan et al. does not disclose expressly the three light emitting diodes are flashed concurrently to emit white light. However, Zavracky et al. discloses the three light emitting diodes are flashed concurrently to emit white light (see Figure 4; Column 9, Lines 45-58). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's flashing method with Fan's display to provide a color display with reduced visible flicker.

12. Claims 6-8, 10-19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 5,815,126) in view of Crossland et al. (GB 2,149,553) and Zavracky et al. (US 5,673,059).

Regarding claim 6, Fan et al. discloses a portable communications device having a reflective color sequential display comprising a device housing [1] (see Figure 3; Column 5, Lines 60-66) having a wireless receiver [720] (see Figure 31A; Column 16, Lines 25-35); an active matrix liquid crystal display having an array of at least 75,000 pixel electrodes (see Column 3, Lines 31-37) and an active area of roughly 160 mm^2 (see Column 9, Lines 27-28); a lens [1907] for viewing the display and spaced apart from the display (see Figure 52A; Column 23, Lines 7-11); a plurality of light emitting diodes (see Column 2, Lines 56-60) that sequentially illuminate the display (see Figure 4; Column 8, Lines 49-54); a color sequential display control circuit positioned in the housing and connected to the wireless receiver (see Figure 4; Column 8, Lines 49-54), the matrix display, and the light emitting diode such that image data is received by the receiver is input to the display control circuit which generates a display signal to drive the pixel electrodes (see Figure 2; Column 7, Lines 30-58) and a timing signal to drive the light emitting diodes (see Figure 4; Column 8, Lines 49-54); coupling reflected light to the lens (see Figure 52B; Column 23, Lines 12-20); and a battery [529] for powering the matrix display, display control circuitry and the light emitting diodes (see Figure 31B; Column 14, Lines 54-56). Fan et al. does not disclose expressly an active area of less than 160 mm^2 , or a dichroic prism for directing the light from the light emitting diodes to the active matrix liquid crystal display. However, Crossland et al. and Zavracky et al. disclose respectively a liquid crystal display with

Art Unit: 2673

an active area of less than 160 mm^2 , and a dichroic prism for directing the light from a light source to an active matrix liquid crystal display.

Crossland et al. discloses a liquid crystal display with an active area of less than 160 mm^2 (see Page 1, Lines 88-90). Zavracky et al. discloses a dichroic prism interposed between a lens and a matrix display (see Column 1, Line 50 - Column 2, Line 6). Fan et al., Crossland et al. and Zavracky et al. are analogous art because they are from the field of liquid crystal display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Crossland's liquid crystal display dimensions and Zavracky's color sequential prism system with Fan's communication device to provide a lighter, more comfortable and more streamlined display, and to provide a color display with reduced visible flicker.

Regarding claims 7 and 15, Fan et al. discloses a diffuser [142] (see Figure 4; Column 9, Lines 21-22).

Regarding claim 8, Fan et al. does not disclose expressly at least one dichroic mirror for directing the light from one light emitting diode and allowing light from another light emitting diode to pass through. However, Zavracky et al. discloses at least one dichroic mirror [210] for directing the light from one light source and allowing light from another light source to pass through (see Figure 4; Column 9, Lines 45-58). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's dichroic mirror with Fan's display to provide a color display with reduced visible flicker.

Regarding claims 10 and 18, Fan et al. discloses a telephone (Figure 31A; Column 16, Lines 25-35).

Regarding claims 11 and 19, Fan et al. discloses a docking station [557] for a wireless telephone (Figure 33; Column 15, Lines 25-37).

Regarding claim 12, Fan et al. discloses a portable communications device having a reflective display comprising a device housing [1] (see Figure 3; Column 5, Lines 60-66) having a wireless receiver [720] (see Figure 31A; Column 16, Lines 25-35); an active matrix liquid crystal display having an array of at least 640 x 480 array of reflective pixel electrodes (see Column 3, Lines 31-37) and an active area of roughly 160 mm² (see Column 9, Lines 27-28), a transistor circuit formed with single crystal silicon associated with each pixel electrode (see Column 1, Lines 45-58); a lens [1907] that focuses an image on the display for viewing by a user (see Figure 52A; Column 23, Lines 7-11); a plurality of light emitting diodes (see Column 2, Lines 56-60); and a display control circuit [210] positioned in the housing and connected to the wireless receiver (see Figure 2; Column 7, Lines 30-58), the matrix display, and the light emitting diodes such that image data that is received by the receiver is input to the display control circuit, which generates a display signal to drive the pixel electrodes (see Figure 2;

Art Unit: 2673

Column 7, Lines 30-58). Fan et al. does not disclose expressly an active area of less than 160 mm², or a dichroic prism for directing the light from the light emitting diodes to the active matrix liquid crystal display. However, Crossland et al. and Zavracky et al. disclose respectively a liquid crystal display with an active area of less than 160 mm², and a dichroic prism for directing the light from a light source to an active matrix liquid crystal display.

Crossland et al. discloses a liquid crystal display with an active area of less than 160 mm² (see Page 1, Lines 88-90). Zavracky et al. discloses a dichroic prism interposed between a lens and a matrix display (see Column 1, Line 50 - Column 2, Line 6). Fan et al., Crossland et al. and Zavracky et al. are analogous art because they are from the field of liquid crystal display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Crossland's liquid crystal display dimensions and Zavracky's color sequential prism system with Fan's communication device to provide a lighter, more comfortable and more streamlined display, and to provide a color display with reduced visible flicker.

Regarding claims 13 and 23, Fan et al. discloses the display control circuit is a color sequential display circuit for sequentially illuminating the display with the light emitting diodes (see Figure 4; Column 8, Lines 49-54).

Regarding claim 14, Fan et al. discloses an array of at least 640 x 480 pixel electrodes (see Column 3, Lines 31-37).

Regarding claims 16 and 22, Fan et al. does not disclose expressly a pair of dichroic mirrors, each mirror directing the light from one light emitting diode and allowing light from at least another light emitting diode to pass through. However, Zavracky et al. discloses a pair of dichroic mirrors [M1a, M2a], each mirror for directing the light from one light emitting diode and allowing light from at least another light emitting diode to pass through (see Figure 17; Column 17, Lines 16-34). Fan et al. and Zavracky et al. are analogous art because they are from the field of active matrix display systems.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Zavracky's dichroic mirrors with Fan's display to provide a color display with reduced visible flicker.

Regarding claim 17, Fan et al. discloses a camera [555b] (see Figure 33; Column 15, Lines 25-37).

Regarding claim 21, Fan et al. does not disclose expressly the active area is less than 100 mm². However, Crossland et al. discloses a liquid crystal display with an active area of less than 100 mm² (see Page 1, Lines 88-90). Fan et al. and Crossland et al. are analogous art because they are from the field of portable communications devices.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Crossland's liquid crystal display dimensions with Fan's communication device to provide a lighter, more comfortable and more streamlined display.

Regarding claim 24, Fan et al. discloses a switching circuit connected to a counterelectrode panel of the matrix display for switching the applied voltage to the counterelectrode panel (see Figure 4; Column 8, Lines 49-54).

13. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 5,815,126) in view of Crossland et al. (GB 2,149,553) and Zavracky et al. (US 5,673,059) as applied to claims 6 and 12 above, and further in view of Kikinis et al. (US 5,634,080).

Regarding claims 9 and 20, Fan et al. does not disclose expressly a wireless pager. Kikinis et al. discloses a wireless pager [92] (Figure 12; Column 18, Lines 7-20). Fan et al. and Kikinis et al. are analogous art because they are from the field of portable communication devices.

Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Kikinis' wireless pager interface with Fan's communication device to offer another commercially popular communication function.

Response to Arguments

14. Applicants' arguments with respect to claims 1, 6 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2673

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



J.P.

January 14, 2002



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600